

Historic, archived document

Do not assume content reflects current
scientific knowledge, policies, or
practices.

1
A984F

FARMERS' BULLETIN NO. 2183

USING
PHENOXY
HERBICIDES
EFFECTIVELY



U. S. DEPARTMENT OF AGRICULTURE

COMMON AND CHEMICAL NAMES OF PHENOXY HERBICIDES

<i>Common name</i>	<i>Chemical name</i>
2,4-D	2,4-dichlorophenoxyacetic acid
2,4,5-T	2,4,5-trichlorophenoxyacetic acid
Silvex	2-(2,4,5-trichlorophenoxy)propionic acid
MCPA	2-methyl-4-chlorophenoxyacetic acid
4-(2,4-DB)	4-(2,4-dichlorophenoxy)butyric acid

CONTENTS

	Page
How plants react	3
Salts and esters	3
"Acid equivalent"	5
Application	5
General principles	5
Methods	6
Testing output of sprayer	8
Cleaning spray equipment	11
Susceptibility chart	11



Growth Through Agricultural Progress

This bulletin supersedes Farmers' Bulletin 2005, "Using 2,4-D Safely."

Washington, D.C.

Issued May 1962

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C. - Price 15 cents

USING PHENOXY HERBICIDES EFFECTIVELY

2,4-D, 2,4,5-T, MCPA, Silvex, 4-(2,4-DB)

By D. L. Klingman and W. C. Shaw, Crops Research Division,
Agricultural Research Service

Phenoxy herbicides—chiefly 2,4-D, 2,4,5-T, silvex, MCPA, and 4-(2,4-DB)—are used widely. They are used for controlling weeds in many crops, on grazing lands, and on lawns, and for killing unwanted brush and trees. These herbicides are especially useful because—

- They are selective; they kill most broadleaf plants but do not kill grasses or grain crops.
- They are potent; many species of weeds are controlled by less than 1 pound of active ingredient per acre.
- They are easy to use.
- They are not poisonous to man, domestic animals, fish, or game when applied at the recommended rates.
- They do not accumulate in the soil and they have no unfavorable effects on soil organisms.
- They are not corrosive to spraying equipment.

HOW PLANTS REACT

When sprayed with phenoxy herbicides, leaves, green stems, twigs, flowers, and fruits usually absorb the herbicides. Roots absorb herbicides sprayed on the soil. When they are applied to growing

plants or to the soil, herbicides rapidly become distributed in the leaves, stems, and roots and cause susceptible plants to die.

These herbicides are absorbed most readily by plants that are growing rapidly. Annual weeds are easiest to kill when they are young. Perennial weeds are easy to kill while they are seedlings; after they are established, most perennials are easiest to kill at the time flower buds appear.

Some broadleaf weeds are killed by very small amounts of phenoxy herbicides. Some are almost unaffected by very large applications.

The chart on pages 12 to 24 lists the susceptibility of many common weeds and woody plants to control by 2,4-D, 2,4,5-T, MCPA, silvex, and 4-(2,4-DB).

SALTS AND ESTERS

Phenoxy herbicides are usually formulated as acids, salts, and esters. Salt and ester formulations usually are supplied as liquid concentrates. The purchaser mixes them before use. The salt concentrates form solutions when mixed with water. The ester concentrates form solutions when mixed with oil; they form milky-white

emulsions when mixed with water.

Heat causes ester formulations to release vapors. Some esters release vapors rapidly at about 80°. These are the high-volatile esters. Others, the low-volatile esters, do not release vapors rapidly until the temperature is about 90° or higher.

Vapors from ester formulations can kill susceptible plants growing near the area to which the formulations are applied. Low-volatile esters are safer—that is, less likely to harm susceptible crops by toxic vapors—than high-volatile esters. Salt formulations are safest—they do not release enough vapors to cause damage.

High-volatile esters are less expensive than low-volatile esters and they can be used effectively and

safely if no susceptible crops are growing nearby.

Ester formulations of the phenoxy herbicides are generally more potent, pound for pound, than salts. They penetrate leaves and other plant surfaces more readily than salts. When a range of rates is recommended for herbicide application, use the lower rate for esters and the higher rate for salts.

Esters are more effective than salts for killing weeds that are growing slowly because of drought or cold weather. Esters usually are best for treating weeds in areas of low humidity; esters are formulated in oils and remain in moist contact on foliage longer and penetrate better than salts, which are mixed with water. And, because



BN-13721-X

Weeds in this field of small grain (treated part at right) were controlled with 2,4-D, which cost 25 cents for each acre treated.

they are oily, esters are less likely than salts to be washed off foliage if rain falls soon after their application.

"ACID EQUIVALENT"

Phenoxy herbicide concentrates are available in various strengths. The amount of active ingredient in the concentrate is indicated on the container label as the number of pounds of "acid equivalent" in each gallon of concentrate.

Usually the strongest concentrates are the most economical to use; they usually cost less per pound of acid equivalent than weaker concentrates. For example, 1 gallon of a 2,4-D concentrate containing 4 pounds of acid equivalent per gallon usually will cost less than 4 gallons of concentrate containing 1 pound of acid equivalent per gallon, and it contains the same amount of active ingredient.

APPLICATION

General Principles

If herbicides are applied carefully they can save you money and labor. If they are applied carelessly, they can kill your crops.

Some crops and ornamental plants are extremely sensitive to phenoxy herbicides; they are severely injured or killed by small traces of the herbicides, such as spray drift or vapors.

The most sensitive of the crops and ornamental plants include cotton, grapes, tomatoes, cucumbers, tobacco, mimosa, roses, and dogwood. For more information

about sensitivity of your crops to phenoxy herbicides, ask your county agricultural agent.

When using phenoxy herbicides near sensitive plants, observe all precautions regarding vapors, spray drift, and cleanliness of equipment.

For safe and effective control of weeds—

- Get professional advice before applying herbicides; ask your county agricultural agent, your State extension weed specialist, or other local agricultural authorities for weed-control recommendations.
- Use herbicides wisely: Follow label precautions.
- Avoid spraying on windy days.

Types of Phenoxy Herbicides Commonly Available

SALTS

Amine (triethanolamine, diethanolamine, trimethylamine, diethylamine, isopropanolamine, etc.)

Sodium

Potassium

Ammonium

ESTERS

High-Volatile

Methyl

Ethyl

Isopropyl

Butyl

Amyl

And others

Low-Volatile

Butoxyethanol

Butoxyethoxypropanol

Ethoxyethoxypropanol

Isooctyl

Propylene glycol butyl ether

And others

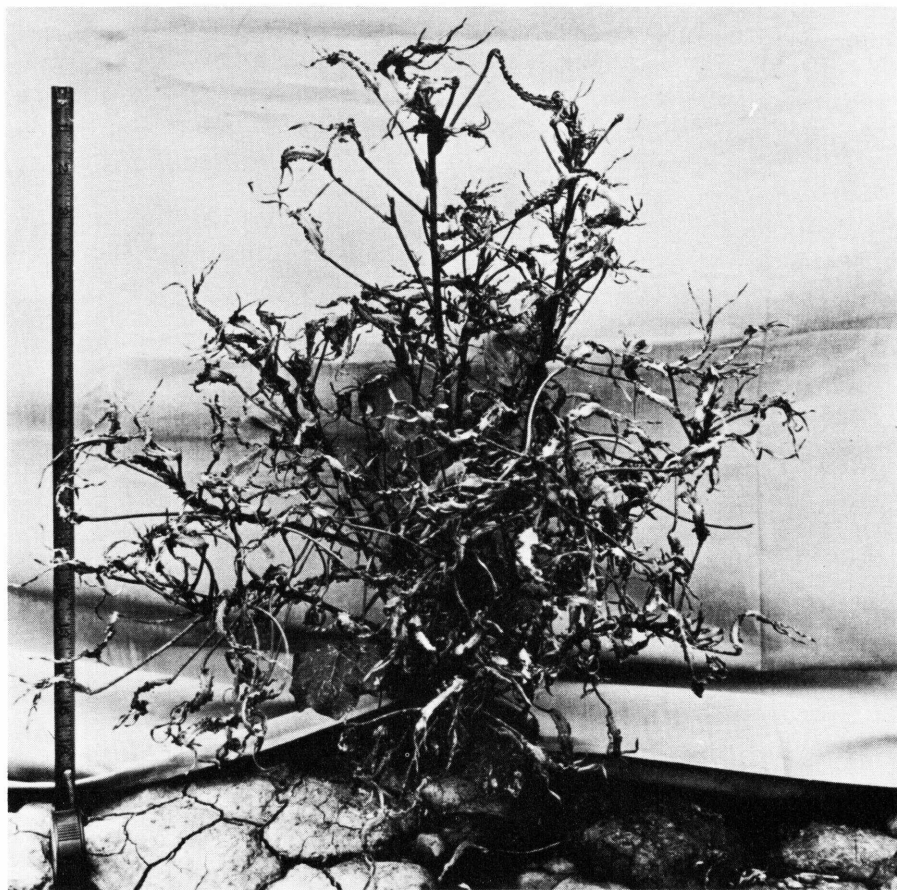
- Do not apply ester formulations when the temperature is above 90°.
- Check output of your sprayer frequently to prevent over application of herbicides.
- Avoid sprayer skips or overlapping swaths.
- Clean spray equipment immediately after use.
- Before using spray equipment for applying insecticides or fungicides to crops, test it for injurious traces of herbicides.

Methods

Cropland

You can apply herbicides on cropland as preemergence sprays (after the crop is planted but before it or the weeds come up) or as postemergence sprays (after the crop and weeds come up).

Most modern spray equipment is designed for low-volume application—from about 5 to about 20 gallons of spray per acre. With the



BN-13680-X

Cotton is extremely susceptible to phenoxy herbicides. This plant was killed when it was accidentally sprayed with 2,4-D.

proper attachments, low-volume equipment can be used for broadcast spraying, band treatments, or directed spraying.

Apply a broadcast spray if the crop plants are not sensitive to the herbicide.

For broadcast application, the spray rig is equipped with a multiple-nozzle boom or a single boomless nozzle.

Apply a directed spray if the crop plants are somewhat sensitive to the herbicide.

For directed application, the rig is equipped with a boom and drop nozzles, which are adjusted to spray the weeds but no more than the bases of the crop plants.

Noncropland

Apply low-volume broadcast spray with boom sprayer to control weeds, brush, and trees on grazing land and along irrigation canals.

Airplanes often are used for applying low-volume broadcast sprays. Airplanes are especially useful for spraying nonrow crops, such as small grains and rice, and noncropland areas that are too large, too rough, or have too many obstructions for ground equipment.

Apply high-volume directed spray to kill brush and trees along roads, utility lines, and fencerows, and aquatic weeds and brush along irrigation and drainage canals.

Equipment for high-volume spraying usually has a large-capacity spray tank (over 100 gallons per acre of spray may be used) and operates at relatively

high pressure (about 60 to 100 pounds per square inch). The rig usually is equipped with a spray hose and adjustable nozzle. The spray often is applied as a drench that thoroughly wets the leaves and stems of the plants that are to be killed.

Apply sprays of ester formulations in diesel oil or kerosene to the bark at the base of small trees or to cuts in the bark at the base of large trees.

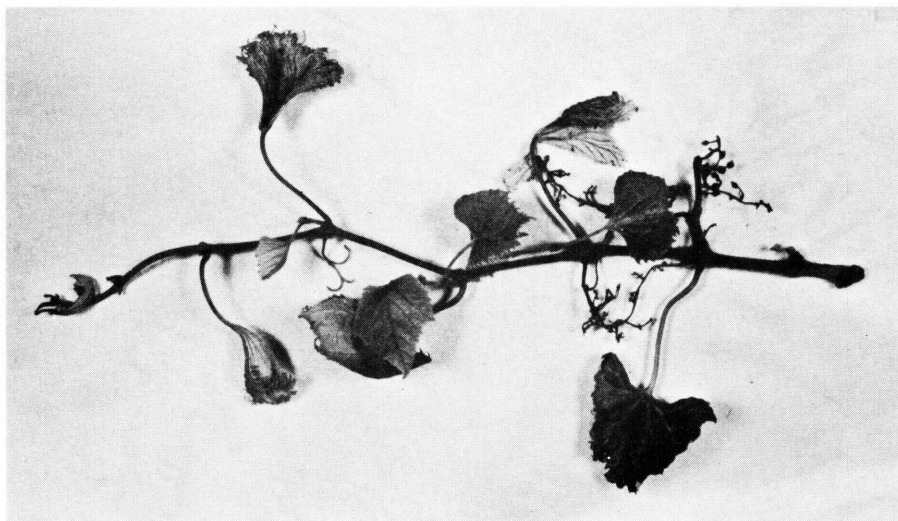
Phenoxy ester formulations with oil as a carrier can be absorbed by the bark at the base of trees with trunk diameters up to about 4 inches. The spray usually is applied with a small hand-operated sprayer and the lower 6 to 12 inches of bark on the trunk is thoroughly wetted with the solution.

Spray Drift

Wind-carried droplets of phenoxy herbicides may kill susceptible crops near the area that is being treated.

To reduce the danger of damaging crops with spray drift—

- Use nozzles that apply a coarse spray.
 - Use low pressures—no more than 35 pounds per square inch for boom sprayers, 100 pounds for spray guns.
 - Avoid spraying on windy days; do not spray with ground equipment when the wind velocity is more than 10 miles an hour, or from airplanes when the wind velocity is more than 6 miles an hour.
 - Spray when wind is blowing away from susceptible crops and toward the area being sprayed.
-



RN-13679-X

Spray drift from a nearby application of phenoxy herbicide severely injured this Concord grape vine.

The bark of many trees that are over 4 inches in diameter is too thick for the spray to penetrate. To kill these larger trees, it is necessary to ring the base of the tree with ax cuts and spray the ester solution into the cuts. The ax cuts must go through the bark and into the sapwood.

TESTING OUTPUT OF SPRAYER

Before mixing or applying herbicides on cropland, check the output of your spray equipment. If you apply too little herbicide, it is ineffective. If you apply too much, it may kill your crops.

In the test, the tractor speed and the pump pressure should be the same as they will be when you apply herbicide. If your tractor is not equipped with a speedometer, it is a good idea to make the test on the same type of terrain that you

plan to spray and to mark the throttle setting that you use.

To test the output—

- Fill the spray tank with water.
- Spray a strip exactly 220 yards long.
- At the end of 220 yards, stop spraying and measure, in quarts, the amount of water needed to refill the spray tank.

To determine the spray output in gallons per acre, multiply the number of quarts by 16.5 and divide the answer by the width, in feet, of the spray strip.

Example: Your spray rig treats a strip 20 feet wide. At operating speed and pressure, the rig uses 6 quarts of water in 220 yards:

$$6 \times 16.5 = 99.$$

$$99 \div 20 = 4.95, \text{ or about } 5 \text{ gallons of spray per acre.}$$

The output of the sprayer is for the area treated. If your sprayer



BN-13681-X

The equipment used to apply insecticide to this tobacco plant had been used previously for applying phenoxy herbicide. The tobacco was injured by herbicide traces that remained in the sprayer.

is adjusted to apply spray in bands to row crops, calculate the total width of the spray pattern. To do this, multiply the number of nozzles by the width that each nozzle treats.

If you are using 6 drop nozzles and each treats a 20-inch width, then the total width of the spray pattern is 10 feet, regardless of the nozzle spacing.

Output of the spray equipment may change because of enlarged nozzle orifices or worn parts in the pump. Check the output periodically to prevent application at the wrong rate.

After you know the output of your sprayer, you can mix the spray accurately. To calculate the total amount of spray needed, multiply the area to be sprayed, in acres, by the output per acre. Add the recommended amount of acid equivalent—in the form of herbicide concentrate—to enough carrier (water or oil) to equal the total amount of spray needed.

For example: The calculated output is 5 gallons per acre and you plan to spray 10 acres at a recommended rate of 1 pound of acid equivalent per acre. Therefore



N-12887

High-volume applications of phenoxy herbicides are effective for controlling brush along irrigation canals, utility rights-of-way, roads, and fence rows.



BN-11740-X

The right half of this field was sprayed with 2,4-D before the corn or weeds emerged. The left half of the field was not treated.

you will need a total of 50 gallons of spray containing 10 pounds of acid equivalent.

The herbicide concentrate contains 4 pounds of acid equivalent per gallon. Add 2½ gallons of concentrate (10 pounds total acid equivalent) to 47½ gallons of water.

CLEANING SPRAY EQUIPMENT

Clean your spray equipment immediately after using it for applying herbicides.

Some crops can be damaged or killed by traces of phenoxy herbicides that are left in the sprayer after cleaning. Before applying fungicides or insecticides to crops with equipment that has been used for herbicides, test the equipment for herbicide traces.

Fill the tank with water and spray a few of the crop plants. Sensitive plants such as tomato, cotton and tobacco are good test plants. Wait a day or two after spraying. If the crop plants show no distorted growth after this period, the equipment can be used safely for spraying the crop. If the plants are distorted, then clean the spray equipment again. Re-test the equipment for cleanliness before using it on crops.

For greatest safety with sensitive crops, apply fungicides or herbicides with equipment that has not been used for applying herbicides.

You can clean spray equipment quickly with a suspension of activated charcoal in water. Use at least one-third of a tank of water. For each 10 gallons of water add ¼ pound of activated charcoal and ⅛ to ¼ pound of laundry detergent. Agitate this mixture vigorously to distribute the charcoal through the water.

Wash the equipment for 2 minutes by swirling the liquid around in the tank so that it reaches all parts of the tank. Pump some of the liquid through the hose and nozzles. Then drain the tank and rinse the equipment with clean water.

SUSCEPTIBILITY CHART

The chart that follows lists the effects of phenoxy herbicides when applied as foliage sprays on a number of common weeds. Normal rate of application for 2,4-D, 2,4,5-T, MCPA, or silvex is 1 pound per acre; normal rate of application for 4-(2,4-DB) is 2 pounds per acre.

The control ratings for the herbicides are interpreted as follows:

Excellent.—One application at normal rate kills the weed.

Good.—Several applications at normal rate needed to kill the weed.

Fair.—Repeated applications at normal rate or application at higher rates needed to kill the weed.

Poor.—Weed kill is erratic, even at high rates of application.

Susceptibility of common weeds to control by 2,4-D, MCPA, 2,4,5-T, silver, and 4-(2,4-DB)

Plant name	Type of plant	Control ¹				
		2,4-D	MCPA	2,4,5-T	Silver	4-(2,4-DB)
Alder (<i>Alnus</i> spp.)	Woody	Good	Good	Excellent	Excellent	
Alligatorweed (<i>Alternanthera philoxeroides</i>)	Perennial	Poor	None	Fair	Fair	
Alyssum, hoary (<i>Berteroa incana</i>)	Perennial ²	Fair	Fair	Excellent		Poor.
Amaranth:						
Green (<i>Amaranthus hybridus</i>)	Annual	Excellent	Excellent	do	Excellent	Excellent.
Palmer (<i>A. palmieri</i>)	do	do	do	do		
See also Pigweed.						
Arrowgrass, seaside (<i>Triglochin maritima</i>)	Perennial	Fair		Fair		
Arrowhead:						
Annual (<i>Sagittaria calycina</i>)	Annual	Excellent	Excellent	Excellent	Excellent	Do.
Perennial (<i>S. longiloba</i>)	Perennial	Fair	Fair	Poor		
Ash (<i>Frazinus</i> spp.)	Woody	None	None	do	Poor	None.
Aster:						
Many-flowered (<i>Aster ericoides</i>)	Perennial	Good				
Western (<i>A. occidentalis</i>)	do	Poor		Poor		Do.
White heath (<i>A. pilosus</i>)	do	Fair		Fair	Fair	Do.
Woody (<i>Xylorrhiza parryi</i>)	do	Poor	None	Poor	Poor	
Baccharis, coyote brush (<i>Baccharis salicina</i>)	Woody	Excellent				
Baileya, desert (<i>Baileya multiradiata</i>)	Perennial	Good		Good		
Bassia, fire-hook (<i>Bassia hyssopifolia</i>)	Annual	Fair				
Cornflower:						
Batchelor's button (<i>Centaurea cyanus</i>)	do	Excellent				
Bedstraw:						
Cleavers (<i>Galium aparine</i>)	do	Poor	None	Poor	Good	Do.
Smooth (<i>G. mollugo</i>)	Perennial	None	do	do	do	Do.
Beetplant, Rocky Mountain (<i>Cleome serrulata</i>)	Annual	Fair				
Beggartick, devils (<i>Bidens frondosa</i>)	do	Excellent	Excellent	Excellent		
Florida betony (<i>Stachys floridana</i>)	Perennial	Poor		Poor		
Bindweed:						
Field (<i>Convolvulus arvensis</i>)	do	Fair	Fair	Fair	Fair	Fair.
Hedge (<i>C. sepium</i>)	do	Good	Good	Good		
Biscuitroot (<i>Lomatium leptocarpum</i>)	do	Fair		do		
Bistort, American (<i>Polygonum bistortoides</i>)	do	do		Fair		None.
Blackberry (<i>Rubus</i> spp.)	Woody	None	None	Good	Fair	Do.

Blackeyed susan (<i>Rudbeckia serotina</i>)	Perennial	Good	do	Excellent
Bloodweed (<i>Ambrosia aptera</i>)	Annual	Excellent	do	Excellent
Blueweed, Texas (<i>Helianthus ciliaris</i>)	Perennial	Fair	do	do
Bouncingbet (<i>Saponaria officinalis</i>)	do	Poor	Poor	Poor
Boxelder (<i>Acer negundo</i>)	Woody	Good	Good	Good
Bracken (<i>Pteridium aquilinum</i>)	Perennial	None	None	None
Broomweed, common (<i>Gutierrezia dracunculoides</i>)	Annual	Good	Good	Good
Broom, Scotch (<i>Cytisus scoparius</i>)	Woody	do	do	do
Buckeye, California (<i>Aesculus californica</i>)	do	Fair	Poor	None
Buckwheat:				
Tartary (<i>Fagopyrum tataricum</i>)	Annual	Poor	Fair	Fair
Wild (<i>F. convolvulus</i>)	do	Fair	Good	Good
Buffalobur (<i>Solanum rostratum</i>)	do	None	None	Good
Bulrush (<i>Scirpus</i> spp.)	Perennial	Fair	Fair	Fair
Burdock, common (<i>Arcium minus</i>)	Biennial	Excellent	Excellent	None
Bur-head (<i>Echinodorus cordifolius</i>)	Annual	do	do	Excellent
Buckbrush (<i>Symphoricarpos orbiculatus</i>)	Woody	Good	Fair	do
Western (<i>S. occidentalis</i>)	do	Fair	Poor	None
Bullnettle (<i>Cnidocolus stimulosus</i>)	Perennial	Good	Good	do
Burroweed (<i>Haplopappus tenuisectus</i>)	do	do	Excellent	do
Buttercup:				
Celery leaf (<i>Ranunculus sceleratus</i>)	Annual	Fair	Excellent	Excellent
Corn (<i>R. arvensis</i>)	do	Good	do	Good
Creeping (<i>R. repens</i>)	Perennial	do	do	Excellent
Tall (<i>R. acris</i>)	do	do	do	None
Campion, bladder (<i>Silene cucubalus</i>)	do	None	do	do
Carpetweed (<i>Mollugo verticillata</i>)	Annual	Excellent	do	do
Carrot, wild (<i>Daucus carota</i>)	Biennial	Fair	Fair	Fair
Catchfly, night flowering (<i>Silene noctiflora</i>)	Annual	None	None	None
Catsear, spotted (<i>Hypochoeris radicata</i>)	Perennial	Good	Excellent	Excellent
Catnip (<i>Nepeta cataria</i>)	do	do	do	do
Cattail:				
Broadleaf (<i>Typha latifolia</i>)	do	Fair	Fair	Poor
Narrowleaf (<i>T. angustifolia</i>)	do	do	do	do
Ceanothus (<i>Ceanothus</i> spp.)	Woody	do	Good	Fair
Wedgeleaf (<i>C. cuneatus</i>)	do	Good	Excellent	do
Chamise (<i>Adenostoma fasciculatum</i>)	do	Fair	Fair	Poor
Chickweed:				
Common (<i>Stellaria media</i>)	Annual	do	Good	Excellent
Field (<i>Cerastium arvense</i>)	Perennial	do	do	do
Mouseear (<i>C. vulgatum</i>)	do	do	do	do

See footnotes at end of table.

Susceptibility of common weeds to control by 2,4-D, MCPA, 2,4,5-T, silver, and 4-(2,4-DB)—Continued

Plant name	Type of plant	Control ¹				
		2,4-D	MCPA	2,4,5-T	Silver	4-(2,4-DB)
Chicory (<i>Cichorium intybus</i>)	Perennial	Good	Good	Good	Good	Fair.
Chockcherry (<i>Prunus virginiana</i>)	Woody	Poor		Fair	Fair	None.
Cinquefoil:						
Blueleaf (<i>Potentilla diversifolia</i>)	Perennial	Fair		do		Do.
Common (<i>P. canadensis</i>)	do	Good	Fair	do	Fair	
Rough (<i>P. norvegica</i>)	Annual ²	Excellent				
Sulfur (<i>P. recta</i>)	Perennial	Good	Fair	Good	Fair	
Cockle:						
Corn (<i>Agrostemma githago</i>)	Annual ²	Poor	Poor	None	None	None.
White (<i>Lycchnis alba</i>)	Perennial	do	None	do		Do.
Cocklebur, common (<i>Xanthium pensylvanicum</i>)	Annual	Excellent	Fair	Excellent		Good.
Coffeeweed (<i>Daubentonia texana</i>)	Woody	do		do	Good	
Coyote brush (<i>Baccharis pilularis</i>)	do	Good		Fair		
Coyotillo (<i>Karwinskia humboldtiana</i>)	Perennial			Excellent	Excellent	
Cranebill, cutleaf (<i>Geranium dissectum</i>)	Annual ²		Excellent			
Cress, hoary (<i>Cardaria draba</i>)	Perennial	Fair	Fair	Fair	Fair	Fair.
Croton:						
Lindheimer (<i>Croton lindheimeri</i>)	Annual	Excellent	Excellent	Good	Good	Good.
Texas (<i>C. texensis</i>)	do	do		Excellent	Excellent	Excellent.
Wolly (<i>C. capitatus</i>)	do	do		do	do	
Burcucumber (<i>Sicyos angulatus</i>)	do	Fair	Excellent			
Cudweed (<i>Gnaphalium peregrinum</i>)	Annual	None				
Daisy, oxeye (<i>Chrysanthemum leucanthemum</i>)	Perennial	Fair	Fair	Good	Fair	None.
Dandelion (<i>Taraxacum officinale</i>)	do	Excellent	Excellent	Excellent	Excellent	Good.
Deadnettle, red (<i>Lamium purpureum</i>)	Annual ²	Poor	Poor			Poor.
Deathcamas (<i>Zigadenus gramineus</i>)	Perennial	Fair		Poor		
Foothill (<i>Z. paniculatus</i>)	do	Good		Fair		
Deerweed (<i>Lotus scoparius</i>)	Woody	Excellent		Excellent	Excellent	
Devil's claw (<i>Proboscidea louisianica</i>)	Annual	do				

Dock:	Perennial	Good	Fair	Good	Good	Fair.
Broadleaf (<i>Rumex obtusifolius</i>)	do	do	do	do	Good	Fair.
Curly (<i>R. crispus</i>)	do	Excellent	do	do	Good	Fair.
Fiddle (<i>R. pulcher</i>)	do	Good	Good	Good	Good	Poor.
Pale (<i>R. altissimus</i>)	do	Fair	do	do	do	do
Veiny (<i>R. venosus</i>)	do	do	do	do	do	do
Dodder:						
Largeseed (<i>Cuscuta indecora</i>)	Annual	Poor	None	None	None	None.
Smallseed alfalfa (<i>C. pentagona</i>)	do	do	do	do	do	Do.
Smallweed, common (<i>Lemna minor</i>)	do	do	do	do	do	do
Elm (<i>Ulmus</i> spp.)	Woody	do	None	Fair	Fair	Do.
Eveningprimrose, common (<i>Oenothera biennis</i>)	Biennial	Excellent	do	Good	Excellent	do
Falseflax, smallseeded (<i>Camelina microcarpa</i>)	Annual	do	do	do	do	do
Fennel, dog (<i>Eupatorium capillifolium</i>)	do	Good	do	Excellent	Excellent	Do.
Fiddleneck, coast (<i>Amsinckia intermedia</i>)	do	do	Fair	Good	do	Do.
Filaree, redstem (<i>Erodium cicutarium</i>)	Annual ²	Good	do	do	do	Poor.
Fireweed (<i>Epilobium angustifolium</i>)	Perennial	do	do	Good	Excellent	do
Fleabane:						
Annual (<i>Erigeron annuus</i>)	Annual	Fair	Fair	do	do	Excellent.
Oregon (<i>E. speciosus</i>)	Perennial	do	do	do	do	do
Rough (<i>E. strigosus</i>)	Annual ²	Good	do	Excellent	Excellent	Good.
Flixweed (<i>Descurainia sophia</i>)	do	Excellent	Fair	do	do	do
Franseria:						
Bur (<i>Franseria discolor</i>)	Perennial	Fair	Poor	Poor	Poor	Poor.
Woolyleaf (<i>F. tomentosa</i>)	do	do	do	do	do	do
Galinsoga, hairy (<i>Galinsoga ciliata</i>)	Annual	Good	Excellent	Excellent	Excellent	do
Garlic, wild (<i>Allium vineale</i>)	Perennial	Fair	Poor	Poor	None	Do.
Geranium, Carolina (<i>Geranium carolinianum</i>)	Annual ²	Good	Excellent	Good	Good	Excellent.
Goatsrue (<i>Galega officinalis</i>)	Perennial	Fair	do	do	do	do
Goldenrod (<i>Solidago</i> spp.)	do	do	do	do	do	do
Gooseberry, sierra (<i>Ribes roezli</i>)	Woody	Excellent	do	Good	do	do
Goosefoot:						
Jerusalem-oak (<i>Chenopodium botrys</i>)	Annual	Fair	Excellent	Excellent	do	Do.
Nettleleaf (<i>C. murale</i>)	do	do	do	do	Fair	Do.
Oakleaf (<i>C. glaucum</i>)	do	Fair	Poor	Fair	Poor	None.
Gooseweed (<i>Sphenoclea zeylanica</i>)	do	Poor	do	do	do	do
Gourd, buffalo (<i>Cucurbita foetidissima</i>)	Perennial	do	do	do	do	do
Goutweed, Bishops (<i>Aegopodium podagraria</i>)	do	None	do	do	do	do
Graphyacinth (<i>Muscari botryoides</i>)	do	do	do	do	do	do
Greenbrier (<i>Smilax bona-nox</i>)	Woody	None	Poor	Poor	Poor	Poor.
Common (<i>S. rotundifolia</i>)	do	do	None	do	do	do
Gromwell (<i>Lithospermum officinale</i>)	Perennial	do	do	do	do	do

See footnotes at end of table.

Susceptibility of common weeds to control by 2,4-D, MCPA, 2,4,5-T, silver, and 4-(2,4-DB)—Continued

Plant name	Type of plant	Control ¹				
		2,4-D	MCPA	2,4,5-T	Silver	4-(2,4-DB)
Groundcherry:						
Clammy (<i>Physalis heterophylla</i>)	Woody	None		Fair	Fair	None
Purple flower (<i>P. lobata</i>)	do	do				
Smooth (<i>P. subglabrata</i>)	do	do	None	Poor	Poor	Do.
Wrights (<i>P. wrightii</i>)	Annual	Excellent		Excellent	Excellent	
Ground-ivy (<i>Glechoma hederacea</i>)	Perennial	Fair	Poor	Fair	Good	
Groundsel:						
Arrowleaf (<i>Senecio triangularis</i>)	do	do		do		Do.
Common (<i>S. vulgaris</i>)	Annual	Poor	Poor	None	None	Do.
Cressleaf (<i>S. glabellus</i>)	do	Excellent	Excellent	Excellent	Good	Good.
Riddell (<i>S. riddellii</i>)	Perennial	do				
Threadleaf (<i>S. longilobus</i>)	do	Fair				
Gum:						
Sweet (<i>Liquidambar styraciflua</i>)	Woody	Poor		Good	Fair	
Tupelo or black (<i>Nyssa sylvatica</i>)	do	None		Fair	do	
Gumweed (<i>Grindelia squarrosa</i>)	Perennial	Excellent				
Halogeton (<i>Halogeton glomeratus</i>)	Annual	Fair	Poor	Poor	Poor	None.
Hawksbeard, smooth (<i>Crepis capillaris</i>)	Annual ²	Poor	do	None	None	Poor.
Hawkweed:						
Orange (<i>Hieracium aurantiacum</i>)	Perennial	Fair	do	Poor		
Yellow (<i>H. pratense</i>)	do	do	do	do		
Hawthorn (<i>Crataegus</i> spp.)	Woody	None	None	Fair	Poor	None.
Healall (<i>Prunella vulgaris</i>)	Perennial	Good	do	Poor	do	Do.
Hellebore, false western (<i>Veratrum californicum</i>)	do	do				
Hemlock, poison (<i>Conium maculatum</i>)	Biennial	do	Excellent	Fair	Excellent	Excellent.
Hemp (<i>Cannabis sativa</i>)	Annual	do		Good		Good.
Hempnettle (<i>Galeopsis tetrahit</i>)	do	Poor	Fair			
Henbit (<i>Lamium amplexicaule</i>)	do	do	Poor	Fair	Good	Poor.
Hogpeanut (<i>Amphicarpa bracteata</i>)	Woody	do	Fair	do	Fair	None.
Hogpotato (<i>Hofmanseggia densiflora</i>)	Perennial	Excellent				
Honey locust (<i>Gleditsia triacanthos</i>)	do	None	None	None	None	Do.
Honeysuckle (<i>Lonicera japonica</i>)	Woody	Poor	Excellent	Fair	Good	
Horsebrush, littleleaf (<i>Tetradymia glabrata</i>)	do	Fair		Good		
	do	Poor		Poor		

Horsenettle, Carolina (<i>Solanum carolinense</i>)	Perennial	do	None	Fair	Poor	Poor.
Horsetail, field (<i>Equisetum arvense</i>)	do	do	Fair	Poor	Poor	
Horseweed, mare's tail (<i>Erigeron canadensis</i>)	Annual	Fair	do	Good	Good	Fair.
Houndstongue (<i>Cynoglossum officinale</i>)	Biennial	do	None	None		
Indian-hemp (<i>Apocynum cannabinum</i>)	Perennial	Poor	None			
Indian-tobacco (<i>Lobelia inflata</i>)	Annual	Fair				
Iris, Rocky Mountain (<i>Iris missouriensis</i>)	Perennial	do		Poor	None	Poor.
Ironweed, Western (<i>Veronica baldwini</i>)	do	Good		Good	None	
Ivy, English (<i>Hedera helix</i>)	do	do		Excellent		
Jerusalem-artichoke (<i>Helianthus tuberosus</i>)	do	Good		do		
Jewelweed (<i>Impatiens pallida</i>)	Annual	Excellent				
Jimmyweed (<i>Haplopappus pluriflorus</i>)	Perennial	Fair		Fair		
Jimsonweed (<i>Datura stramonium</i>)	Annual	Good	Excellent	Good		Excellent.
Jointvetch, Northern (<i>Aeschynomene virginica</i>)	do	Fair	Fair	Excellent	Fair	None.
Juniper:						
Alligator (<i>Juniperus deppeana</i>)	Woody	None		None	None	Do.
One-seed (<i>J. monosperma</i>)	do	do		do	do	Do.
Utah (<i>J. osteosperma</i>)	do	Poor		Poor	do	Do.
Knapweed:						
Brown (<i>Centaurea jacea</i>)	Perennial	Fair			Poor	Do.
Diffuse (<i>C. diffusa</i>)	Biennial	Excellent	None	Poor	do	Do.
Russian (<i>C. repens</i>)	Perennial	Poor	Poor	do		
Spotted (<i>C. maculosa</i>)	Biennial	Fair	Excellent	Fair	Good	
Squarrose (<i>C. virgata</i> var. <i>squarrosa</i>)	Perennial	do				
Knapel (<i>Scleranthus annuus</i>)	Annual	None	None	Excellent	Excellent	Excellent.
Koehis (<i>Kochia scoparia</i>)	do	Excellent	Good			
Knotweed:						
Japanese (<i>Polygonum cuspidatum</i>)	Perennial	Poor		Poor	do	Poor.
Prostrate (<i>P. aviculare</i>)	Annual	Fair	Poor	Fair	Fair	
Saxhalin (<i>P. sachalinense</i>)	Perennial	Good				
Silversheath (<i>P. argyrocoleon</i>)	Annual	Fair				
Kudzu (<i>Pueraria lobata</i>)	Perennial	do	Fair	Fair	Fair	Excellent.
Lambsquarters, common (<i>Chenopodium album</i>)	Annual	Excellent	Excellent	Excellent	Excellent	
Larkspur:						
Little (<i>Delphinium bicolor</i>)	Perennial	None		None	None	None.
Menzies (<i>D. menziesii</i>)	do	Fair		Fair		
Tall (<i>D. barbeyi</i>)	do	None		None		
Dunecap (<i>D. occidentale</i>)	do	do	None	Fair	Fair	
Lettuce:						
Blue (<i>Lactuca pulchella</i>)	do	Fair	Fair	do	Fair	Fair.
Wild (<i>L. scariola</i>)	Annual	Excellent				

See footnotes at end of table.

Susceptibility of common weeds to control by 2,4-D, MCPA, 2,4,5-T, silvex, and 4-(2,4-DB)—Continued

Plant name	Type of plant	Control ¹				
		2,4-D	MCPA	2,4,5-T	Silvex	4-(2,4-DB)
Loco, bigbend (<i>Astragalus earlei</i>)	Annual ²	Excellent		Fair	Fair	
Locoweed, white (<i>Oxytropis lambertii</i>)	Perennial	Fair		Good	Good	
Locust, black (<i>Robinia pseudo-acacia</i>)	Woody	do		Excellent	Excellent	Excellent.
London-rocket, annual (<i>Sisymbrium irio</i>)	Annual	Excellent	Excellent	None	None	None.
London-rocket, perennial (<i>Franseria confertiflora</i>)	Perennial	None	None			
Lupine (<i>Lupinus rivularis</i>)	Woody	Excellent		Excellent	Excellent	Excellent.
Silvery (<i>L. argenteus</i>)	Perennial	Fair	None	do		
Tailcup (<i>L. caudatus</i>)	do	Good				
Madrone (<i>Arbutus menziesii</i>)	Woody	Fair		Fair		
Mallow:						
Common (<i>Malva neglecta</i>)	Annual ²	Poor	None	Poor	Poor	
Dwarf (<i>M. rotundiflora</i>)	Perennial	Fair				
Little (<i>M. parviflora</i>)	Annual	do	None			
Venice (<i>Hibiscus trionum</i>)	do	Good	Excellent	Excellent		
Manzanita (<i>Arctostaphylos</i> spp.)	Woody	do	Poor	Fair	Fair	Poor.
Maples (<i>Acer</i> spp.)	do	Poor	None	do	Good	None.
Marshelder (<i>Iva xanthifolia</i>)	Annual	Excellent	Good	Good	Excellent	Excellent.
Mayweed, dogfennel (<i>Anthemis cotula</i>)	do	Fair	Poor	Fair	Fair	None.
Medic, Black (<i>Medicago lupulina</i>)	do	do	Fair	do	Good	Poor.
Mesquite:						
Honey (<i>Prosopis juliflora</i> var. <i>glandulosa</i>)	Woody	Poor		do	Fair	Fair.
Velvet (<i>P. juliflora</i> var. <i>velutina</i>)	do	None	None	Good	do	None.
Mexican tea (<i>Chenopodium ambrosioides</i>)	Annual	Excellent	Excellent	Excellent	Good	Excellent.
Mexican weed (<i>Caperonia castaneaefolia</i>)	do	Fair	Fair	Good	do	None.
Milkweed (<i>Asclepias curassavica</i>)	Perennial	Good		Excellent		Do.
Broadleaf (<i>A. latifolia</i>)	do	Fair			Fair	
Common (<i>A. syriaca</i>)	do	None	None	Poor	do	Do.
Showy (<i>A. speciosa</i>)	do	do	do	do	Good	Do.
Eastern whorled (<i>A. verticillata</i>)	do	do	do	do		Do.
Mimosa, catclaw (<i>Mimosa biuncifera</i>)	Woody	do				Do.
Moneywort (<i>Lysimachia nummularia</i>)	Perennial	Excellent		do		Poor.

Morningglory:					
Common (<i>Ipomoea purpurea</i>)	Annual	do	do	Excellent	Excellent.
Ivyleaf (<i>I. hederacea</i>)	do	do	do	do	Do.
Woolly (<i>I. hirsutula</i>)	do	do	do	do	Excellent
Mountain Mahogany (<i>Cercocarpus montanus</i>)	Woody	do	do	do	do
Mudplantain (<i>Heteranthera limosa</i>)	Annual	do	do	do	do
Mugwort (<i>Artemisia vulgaris</i>)	Perennial	do	do	do	do
Mulberry (<i>Morus</i> spp.)	Woody	do	do	do	do
Mulsears (<i>Wyethia amplexicaulis</i>)	Perennial	do	do	do	do
Mullein:					
Common (<i>Verbascum thapsus</i>)	Biennial	do	do	do	do
Moth (<i>V. blattaria</i>)	Perennial	do	do	do	do
Mustard:					
Black (<i>Brassica nigra</i>)	Annual	do	do	do	do
Blue (<i>Chorispora tenella</i>)	do	do	do	do	do
Haresear (<i>Conringia orientalis</i>)	do	do	do	do	do
Hedge (<i>Sisymbrium officinale</i>)	do	do	do	do	do
Indian (<i>Brassica juncea</i>)	do	do	do	do	do
Tumble (<i>Sisymbrium altissimum</i>)	do	do	do	do	do
Wild (<i>Brassica kaber</i>)	do	do	do	do	do
Wormseed (<i>Erysimum cheiranthoides</i>)	Annual ²	do	do	do	do
Nettle:					
Stinging (<i>Urtica dioica</i>)	Perennial	do	do	do	do
Tail (<i>U. procera</i>)	Annual	do	do	do	do
Niggerhead (<i>Rudbeckia occidentalis</i>)	Perennial	do	do	do	do
Nightshade:					
Black (<i>Solanum nigrum</i>)	Annual	do	do	do	do
Cutleaf (<i>S. triflorum</i>)	do	do	do	do	do
Silverleaf (<i>S. elaeagnifolium</i>)	Perennial	do	do	do	do
Norcal bean (<i>Sophora secundiflora</i>)	do	do	do	do	do
Nutsedge:					
Purple (<i>Cyperus rotundus</i>)	do	do	do	do	do
Yellow (<i>C. esculentus</i>)	do	do	do	do	do
Oak:					
Black (<i>Quercus velutina</i>)	Woody	do	do	do	do
Blackjack (<i>Q. marilandica</i>)	do	do	do	do	do
Blue (<i>Q. douglasii</i>)	do	do	do	do	do
Gambel (<i>Q. gambelii</i>)	do	do	do	do	do
Interior live (<i>Q. wislizenii</i>)	do	do	do	do	do
Post (<i>Q. stellata</i>)	do	do	do	do	do
Scrub (<i>Q. dumosa</i>)	do	do	do	do	do
Shinnery (<i>Q. havardi</i>)	do	do	do	do	do

See footnotes at end of table.

Susceptibility of common weeds to control by 2,4-D, MCPA, 2,4,5-T, silver, and 4-(2,4-DB)—Continued

Plant name	Type of plant	Control ¹				
		2,4-D	MCPA	2,4,5-T	Silver	4-(2,4-DB)
Oak—Continued						
Turbinella (<i>Q. turbinella</i>)	Woody	Fair	None	Poor	Fair	Poor.
White (<i>Q. alba</i>)	do.	do	Poor	Good	do	None.
Onion, wild (<i>Allium canadense</i>)	Perennial	do	do	Poor	do	Poor.
Orache (<i>Atriplex hastata</i>)	Annual	Good	do	Excellent	do	do
Ossage-orange (<i>Maclura pomifera</i>)	Woody	Poor	do	Good	Fair	do
Parsley, desert (<i>Lomatium grayi</i>)	Perennial	Excellent	Excellent	do	Excellent	Excellent.
Parsnip, wild (<i>Pastinaca sativa</i>)	Biennial	do	do	do	do	do
Partridgepea (<i>Cassia fasciculata</i>)	Annual	do	Excellent	Excellent	do	do
Passionflower, Maypop (<i>Passiflora incarnata</i>)	Perennial	Fair	do	do	Excellent	do
Peavine (<i>Astragalus emoryanus</i>)	Annual	Good	do	Good	do	do
Pellitoryweed (<i>Parietaria floridana</i>)	do.	None	None	Excellent	do	None.
Pennycress, field (<i>Thlaspi arvense</i>)	do.	Excellent	Excellent	do	Good	Good.
Pennywort, lawn (<i>Hydrocotyle sibthorpioides</i>)	Perennial	Good	do	do	Excellent	do
Penstemon, Rydberg (<i>Penstemon rydbergii</i>)	do.	Fair	do	Poor	do	None.
Pepperweed:						
Field (<i>Lepidium campestre</i>)	Annual	Excellent	Excellent	Good	Fair	Excellent.
Perennial (<i>L. latifolium</i>)	Perennial	Fair	do	Fair	do	do
Virginia (<i>L. virginicum</i>)	Annual	Excellent	Excellent	do	do	do
Yellowflower (<i>L. perfoliatum</i>)	do.	do	do	Excellent	Excellent	do
Persimmon (<i>Diospyros virginiana</i>)	Woody	Poor	do	Poor	Fair	do
Texas (<i>D. texana</i>)	do.	Excellent	do	do	Excellent	do
Pigweed:						
Prostrate (<i>Amaranthus graecizans</i>)	Annual	do	Excellent	Excellent	do	Do.
Rough (<i>A. retroflexus</i>)	do.	do	do	do	Excellent	Do.
Tumble (<i>A. albus</i>)	do.	do	do	do	do	Do.
Pineappleweed (<i>Matricaria matricarioides</i>)	do.	Fair	Poor	None	Poor	None.
Plantain:						
Blackseed (<i>Plantago rugelii</i>)	Perennial	Excellent	Excellent	Excellent	do	Excellent.
Broadleaf (<i>P. major</i>)	do.	do	do	do	Excellent	Do.
Buckhorn (<i>P. lanceolata</i>)	do.	do	Good	do	do	Do.
Poison-ivy (<i>Rhus radicans</i>)	Woody	Fair	Fair	do	do	None.
Poison-oak (<i>Rhus diversiloba</i>)	do.	do	Poor	do	do	Do.

Pokeweed (<i>Phytolacca americana</i>)	Perennial	do	Fair	Good	Good	
Pondweed (<i>Potamogeton</i> spp.)	do	do	None	Poor	Poor	
Ponyfoot (<i>Dichondra repens</i>)	do	Excellent				
Poorjoe (<i>Diodia teres</i>)	Annual	Good	Fair	Good	Fair	Fair.
Poppy, Roemer (<i>Roemeria refracta</i>)	do	Excellent				
Prickly-ash, Northern (<i>Xanthoxylum americanum</i>)	Woody	Poor		Fair		
Pricklypear (<i>Opuntia</i> spp.)	Perennial			do		
Prickly poppy (<i>Argemone intermedia</i>)	Annual	Excellent				
Purslane, common (<i>Portulaca oleracea</i>)	do	Fair	Fair	Excellent	Good	Good.
Puncturevine (<i>Tribulus terrestris</i>)	do	Good	do		Fair	Do.
Pusley, Florida (<i>Richardia scabra</i>)	do	Excellent				
Queensdelight (<i>Stillingia sylvatica</i>)	Perennial	None				
Rabbitbrush:						
Gray (<i>Chrysothamnus nauseosus</i>)	Woody	Fair	Poor	Poor	Poor	
Yellow (<i>C. viscidiflorus</i>)	do	do	do	do	do	
Radish, wild (<i>Raphanus raphanistrum</i>)	Annual	Excellent	Excellent	Excellent	Excellent	Excellent.
Ragweed:						
Common (<i>Ambrosia artemisiifolia</i>)	do	do	do	do	do	Do.
Giant (<i>A. trifida</i>)	do	do	do	do	do	Do.
Western (<i>A. psilostachya</i>)	Perennial	Good				Do.
Ragwort, tansy (<i>Senecio jacobaea</i>)	Perennial ²	do	Fair	Fair	Fair	Poor.
Rape, Bird (<i>Brassica rapa</i>)	Biennial	Excellent	Excellent	Excellent	Excellent	Excellent.
Raspberry (<i>Rubus</i> spp.)	Woody	Poor	None	Good	Good	None.
Redbay (<i>Persea borbonia</i>)	do	do		do	Poor	
Redbud (<i>Cercis occidentalis</i>)	do	do		do	Poor	Do.
Redvine (<i>Brunnichia cirtiosa</i>)	Perennial	None	None	do	Poor	Good.
Redstem (<i>Ammannia coccinea</i>)	Annual	Excellent	Excellent	Excellent	Excellent	
Rose:						
California (<i>Rosa californica</i>)	Woody	None		Fair	Excellent	
Cherokee (<i>R. laevigata</i>)	do	Fair		do	Excellent	
Macartney (<i>R. bracteata</i>)	do	do	None	do	Good	
Multiflora (<i>R. multiflora</i>)	do	Poor	do	Fair	Fair	
Prairie (<i>R. pratincola</i>)	do	Fair		Excellent	Fair	None.
Woods (<i>R. woodsii</i>)	do	None		Fair	None	
Rubberweed:						
Bitter (<i>Hymenoxys odorata</i>)	Annual	Excellent				
Colorado (<i>H. richardsoni</i>)	Perennial	Good		Fair	Fair	Fair.
Rue, African (<i>Peganum harmala</i>)	do	do	do	do	do	
Sage:						
Creeping (<i>Salvia sonomensis</i>)	do	Good	Fair	Good	do	
Purple (<i>S. leucophylla</i>)	do	do				

See footnotes at end of table.

* Susceptibility of common weeds to control by 2,4-D, MCPA, 2,4,5-T, silver, and 4-(2,4-DB)—Continued

Plant name	Type of plant	Control ¹			
		2,4-D	MCPA	2,4,5-T	Silver
Sage—Continued					4-(2,4-DB)
White (<i>S. apiana</i>)	Perennial	Good			
Sagebrush:					
Big (<i>Artemisia tridentata</i>)	Woody	do	Poor	Good	Fair
California (<i>A. californica</i>)	do	Excellent		do	
Sand (<i>A. filifolia</i>)	do	do	Good	do	Good
Salsify:					
Common (<i>Tragopogon porrifolius</i>)	Biennial	Good			
Meadow (<i>T. pratensis</i>)	do	do			
Saltcedar (<i>Tamarix gallica</i>)	Woody	Poor	None	Fair	Good
Sedge, Umbrella (<i>Cyperus difformis</i>)	Annual	Fair	Fair	Poor	Poor
Sesbania, coffeebean (<i>Sesbania exaltata</i>)	do	do	Good	Good	Excellent
Sorrel (<i>Rumex acetosa</i>)	Perennial	Good	Fair	do	Fair
Heartwing (<i>R. hastatulus</i>)	do	Excellent			Do.
Red (<i>R. acetosella</i>)	do	None	None	None	None.
Shepherdspurse (<i>Capsella bursa-pastoris</i>)	Annual	Good	Good	Excellent	Good.
Sicklepod, coffeeweed (<i>Cassia tora</i>)	do	Excellent	Excellent		
Skunkcabbage (<i>Symplocarpus foetidus</i>)	Perennial	Good		Good	Fair
Smartweed:					
Ladysthumb (<i>Polygonum persicaria</i>)	Annual	do	Fair	do	Good
Pennsylvania (<i>P. pensylvanicum</i>)	do	do	do	do	Fair
Swamp (<i>P. coccineum</i>)	Perennial	Poor			
Snakeroot, white (<i>Eupatorium rugosum</i>)	do	Fair		Fair	Poor
Snakeweed:					
Broom (<i>Gutierrezia sarothrae</i>)	do	do	Fair	do	do
Threadleaf (<i>G. microcephala</i>)	do	Good		Good	Good
Sneezeweed, bitter (<i>Helenium tenuifolium</i>)	Annual	Excellent	Excellent	Excellent	Excellent
Snow-on-the-mountain (<i>Euphorbia marginata</i>)	do	Fair		Good	Fair.
Sowthistle:					
Annual (<i>Sonchus oleraceus</i>)	do	Excellent	Excellent	Excellent	Excellent.
Perennial (<i>S. arvensis</i>)	Perennial	Fair	Fair	Fair	Fair.
Spiny (<i>S. asper</i>)	Annual	Excellent	Excellent	Excellent	Excellent.
Spanishneedles (<i>Bidens bipinnata</i>)	do	do	Excellent	do	Excellent

Speedwell:

Common (<i>Veronica officinalis</i>)	Perennial	Poor	None	None	Poor	None.
Corn (<i>V. arvensis</i>)	Annual	do.	do.	do.	do.	Do.
Purslane (<i>V. peregrina</i>)	do.	Fair	do.	Fair	do.	Poor.
Spikerush (<i>Eleocharis palustris</i>)	Perennial	do.	Fair		Poor	
Spurge:						
Flowering (<i>Euphorbia corollata</i>)	do.	Poor		Good		None.
Leafy (<i>E. esula</i>)	do.	do.	None	Poor	Fair	None.
Spotted (<i>E. maculata</i>)	do.	do.		do.	Fair	
Spurry, corn (<i>Spergula arvensis</i>)	Annual	do.	Fair	None	Fair	Do.
Squaw-berry (<i>Rhus trilobata</i>)	Woody			Poor		Poor.
Starthistle, yellow (<i>Centaurea solstitialis</i>)	Annual	Fair				None.
Sticktight, European (<i>Lappula echinata</i>)	do.	Good				
Strawberry, wild (<i>Fragaria</i> spp.)	Perennial	Poor	None	Poor	Fair	Do.
St. Johnswort (<i>Hypericum perforatum</i>)	do.	do.				
Spotted (<i>H. punctatum</i>)	do.	Fair		Fair		
Sumpweed, rough (<i>Iva ciliata</i>)	Annual	Excellent		Excellent	Excellent	Excellent.
Sunflower (<i>Helianthus annuus</i>)	do.	do.	Good			Do.
Sweetclover, annual yellow (<i>Melilotus indica</i>)	do.	do.	Excellent			Poor.
Tanoak (<i>Lithocarpus densiflora</i>)	Woody	Poor	None	Poor	Poor	
Tansy (<i>Tanacetum vulgare</i>)	Perennial	Fair		Fair	Fair	
Tansymustard (<i>Descurainia pinnata</i>)	Annual	Excellent				
Thistle:						
Blessed (<i>Cnicus benedictus</i>)	do.	do.	Fair	Fair	Fair	Excellent.
Blue (<i>Echium vulgare</i>)	Biennial	Fair	Excellent	Excellent	Excellent	
Bull (<i>Cirsium vulgare</i>)	do.	do.	Fair			
Bristly (<i>C. horridulum</i>)	Perennial ²	do.	Fair	Fair	Fair	Fair.
Canada (<i>C. arvense</i>)	Perennial	do.	Good	Good	Good	Good.
Russian (<i>Salsola kali</i>)	Annual	Good		Excellent		
Tickseed (<i>Coreopsis tinctoria</i>)	do.	do.				
Toadflax:						
Blue (<i>Linaria canadensis</i>)	Perennial	Poor		None	None	None.
Yellow (<i>L. vulgaris</i>)	do.	None	None	Fair	Fair	Fair.
Toyon (<i>Heteromeles arbutifolia</i>)	Woody	Good	Fair	Excellent	Good	Poor.
Tree-of-heaven (<i>Ailanthus altissima</i>)	do.	Fair	None	Fair	Excellent	None.
Trumpet creeper (<i>Campsis radicans</i>)	do.	Poor	do.	Good	Excellent	Excellent.
Velvet-leaf (<i>Abutilon theophrasti</i>)	Annual	Excellent				
Vervain:						
Blue (<i>Verbena hastata</i>)	Perennial	do.				
Hoary (<i>V. stricta</i>)	do.	Good				
Prostrate (<i>V. bracteata</i>)	do.	Excellent				
Roadside (<i>V. bonariensis</i>)	do.	Good				

See footnotes at end of table.

Susceptibility of common weeds to control by 2,4-D, MCPA, 2,4,5-T, silvex, and 4-(2,4-DB)—Continued

Plant name	Type of plant	Control ¹			
		2,4-D	MCPA	2,4,5-T	Silvex
Vetch:					
Narrowleaf (<i>Vicia angustifolia</i>)	Annual	Excellent	Fair	Excellent	
Milk (<i>Astragalus</i> spp.)	Perennial	Good	do	Good	Excellent
Two grooved (<i>A. bisulcatus</i>)	do	Excellent			
Wild (<i>Vicia</i> spp.)	Annual	do	Excellent	Excellent	Excellent
Violet (<i>Viola</i> spp.)	Perennial	Poor	None		
Walnut, black (<i>Juglans nigra</i>)	Woody	Excellent		Excellent	
Waterhemlock, spotted (<i>Cicuta maculata</i>)	Perennial	Good		do	
Water-hyacinth (<i>Eichhornia crassipes</i>)	do	do		do	Excellent
Waterplantain (<i>Alisma triviale</i>)	do	Excellent	Excellent	Good	Good
Waterweed, Canada (<i>Elodea canadensis</i>)	do	Fair			
Willow (<i>Salix</i> spp.)	Woody	Good	Good	Good	Good
Witchweed (<i>Striga asiatica</i>)	Annual	Excellent	Excellent	Excellent	Excellent
Woodsorrel, yellow (<i>Oxalis stricta</i>)	Perennial	Poor	None		do
Wormwood, annual (<i>Artemisia annua</i>)	Annual	Good	Fair	Good	
Yankeeeweed (<i>Eupatorium compositifolium</i>)	Perennial	Fair		Fair	
Yarrow:					
Common (<i>Achillea millefolium</i>)	do	Poor	Poor	Poor	None.
Western (<i>A. lanulosa</i>)	do	Fair		Fair	Do.
Yellow-rocket (<i>Barbarea vulgaris</i>)	Perennial ²	Good	Good	Good	Fair.
Yerba-santa (<i>Eriodictyon californicum</i>)	Woody	Excellent	do	do	None.
Yucca; soapweed (<i>Yucca glauca</i>)	Perennial	None		Poor	do

¹ For explanation of control ratings, see "Susceptibility Chart," page 11. ² Sometimes biennial.